

CLAIM AMENDMENTS

1. (currently amended) A method for fabricating an apodized optical fiber grating using ~~an ultraviolet light source, a lens system for converging the light incident from the ultraviolet light source, an amplitude mask for selectively transmitting therethrough the ultraviolet light incident from the lens system onto an optical fiber, wherein the light source, the lens system, the amplitude mask and the optical fiber are arranged on an optical axis, the method comprising the steps of:~~

(a) selecting a slit pattern for an amplitude mask, said slit pattern having a period, and a positioning of a lens system between a light source and the amplitude mask, and of the amplitude mask between the lens system and an optical fiber so that the light source, the lens system, the amplitude mask and optical fiber are arranged on an optical axis, and so that lines defined by rays of ultraviolet light leaving the lens system for the amplitude mask meet at a converging point~~setting a period of the apodized optical fiber grating formed on the optical fiber and setting a width of each stripe of the apodized optical~~

~~fiber grating, wherein the width of each stripe along the optical fiber becomes narrower as the stripe is positioned further away from the optical axis;~~

~~(b) setting a longitudinal ratio, which is a ratio of the distance between a converging point of the lens system and the amplitude mask and the distance between the converging point of the lens system and the optical fiber;~~

(eb) determining a longitudinal ratio equal to a transverse ratio by updating said positioning, said longitudinal ratio being a ratio of a distance between said converging point and the amplitude mask to a distance between said converging point and the optical fiber, said transverse ratio being~~setting a period of the amplitude mask so as to equalize a transverse ratio, which is a ratio of saidthe period of the amplitude mask toand thea period of the apedized optical fiber grating stripes that would be produced by said light, with the longitudinal ratio set in step (b); and~~

(cd) sett~~determining~~ a thickness of the amplitude mask so as to match the stripe pattern of the apedized optical fiber grating set in step (a) with a pattern of light distribution on a light exit surface of the maskthat

said light from the light source transmitted through the lens system and the amplitude mask to the optical fiber would form stripes along the optical fiber that become narrower as the stripes become more distant from the optical axis; and

(d) producing said light in a path from said light source to the lens system, to the amplitude mask, and to said optical fiber to fabricate said apodized optical fiber grating.

2. (previously amended) The fabrication method of Claim 1, wherein the ultraviolet light source comprises an excimer laser.

3. (previously amended) The method of Claim 1, wherein the lens system comprises at least one cylindrical convex lens and at least one concave lens.

4. (currently amended) The method of Claim 3, wherein step (b) further comprises the step of adjusting said converging point of the lens system is adjusted by selectively varying a distance between the at least one

cylindrical convex lens and the at least one concave lens.

5. (canceled)

6. (canceled)

7. (currently amended) The method of claim 1,  
wherein said slit pattern comprises slits, a width of each  
of said slits ~~of the amplitude mask is being~~ substantially  
greater than ~~the~~any wavelength of the ~~said incident~~ light  
~~transmitted from the lens system.~~